

200504US-2



*RESPONSE UNDER 37 CFR 1.116-
EXPEDITED PROCESSING
(GROUP 2811)

#16/Formal
Drawing
1/30/03
Adm H

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:

Takuji MATSUMOTO ET AL. : GROUP ART UNIT: 2811

SERIAL NO: 09/729,816

FILED: DECEMBER 6, 2000 : EXAMINER: OWENS, D.

FOR: SEMICONDUCTOR DEVICE AND
METHOD OF MANUFACTURING
THE SAME

LETTER TO THE OFFICIAL DRAFTSMAN

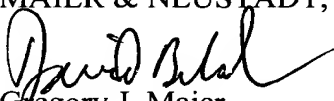
ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Any corrections required by the Chief Draftsman or drawings amendments approved by the Examiner have been incorporated into the copies of the Formal Drawings submitted herewith. It is requested that the enclosed 14 sheets of Formal Drawings be entered to replace the drawings previously filed in this application.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND
MAIER & NEUSTADT, P.C.

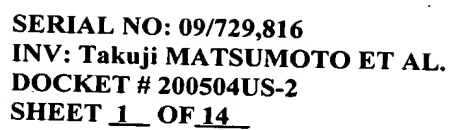

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This diagram shows a cross-sectional view of a semiconductor device. A dashed line labeled 'B' indicates the location of the cross-section. The device consists of a substrate (1) with a top layer (2). A series of vertical structures (3) are formed on the substrate, each containing a central core (5) and a surrounding layer (9). The top of the device features a series of horizontal layers (11, 14, 111) and a topmost layer (13). A dashed line 'B-B' is drawn across the top of the device, indicating the plane of the cross-section.

This cross-sectional view illustrates a defect in a trench structure. The device consists of a substrate (1) with a bottom layer (2) and a top layer (3a). A trench (4) is formed in the top layer (3a). The trench (4) is filled with a material (11) and has a sidewall (12). A defect (8) is located in the trench (4), indicated by a series of 'x' marks. The defect (8) is situated within a layer (11) that is part of a structure (110) on top of the trench (4). The structure (110) is formed on a layer (13) and is adjacent to a layer (10). The defect (8) is also adjacent to a layer (14).



FIG. 6

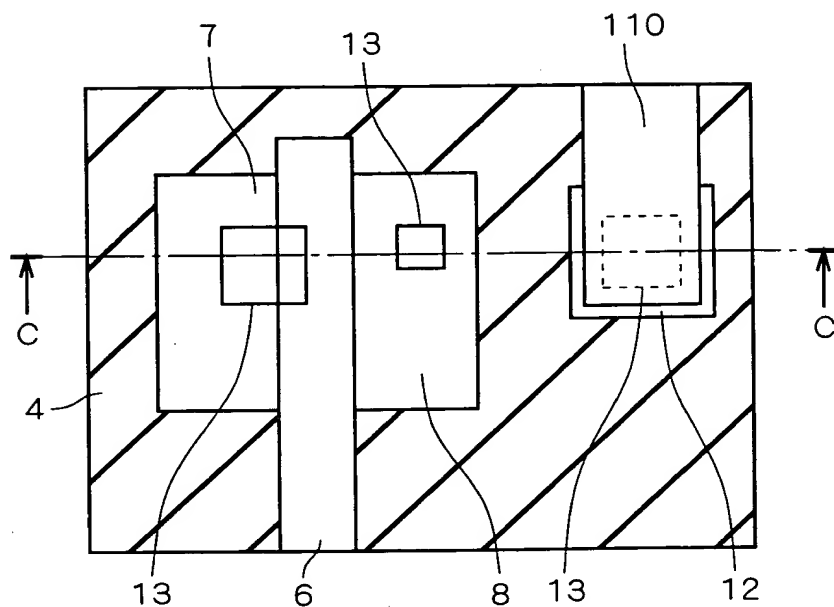


FIG. 7

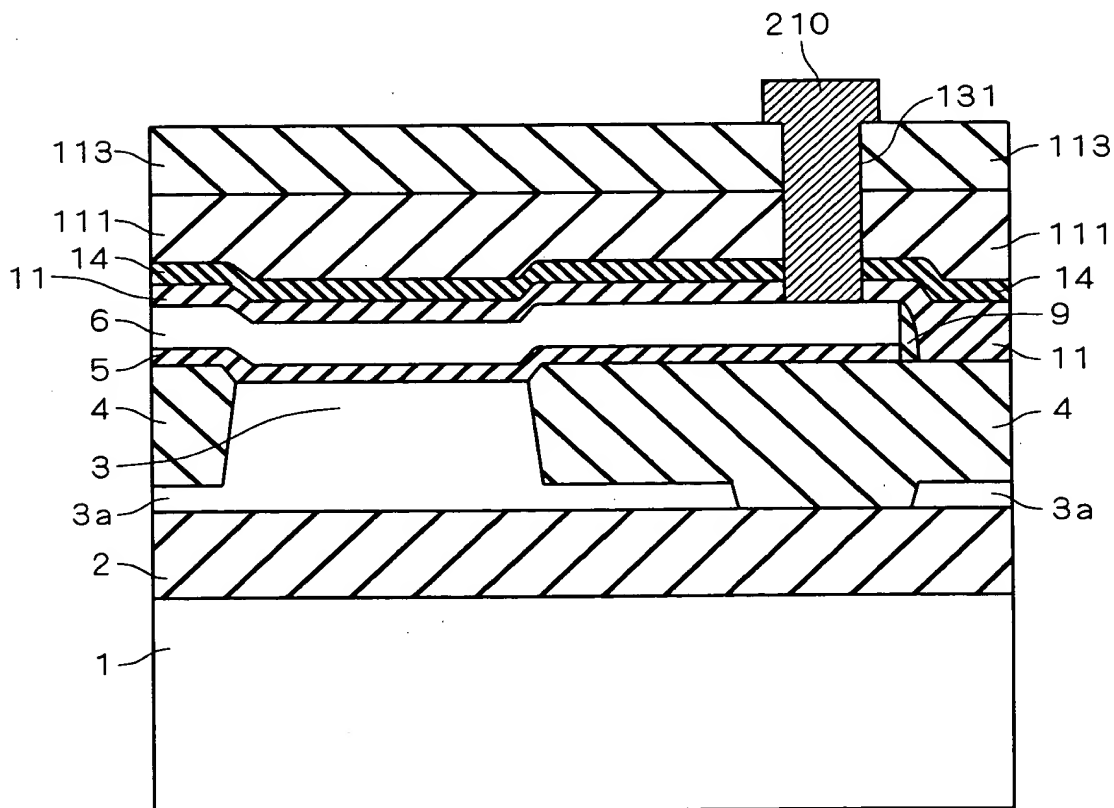




FIG. 8

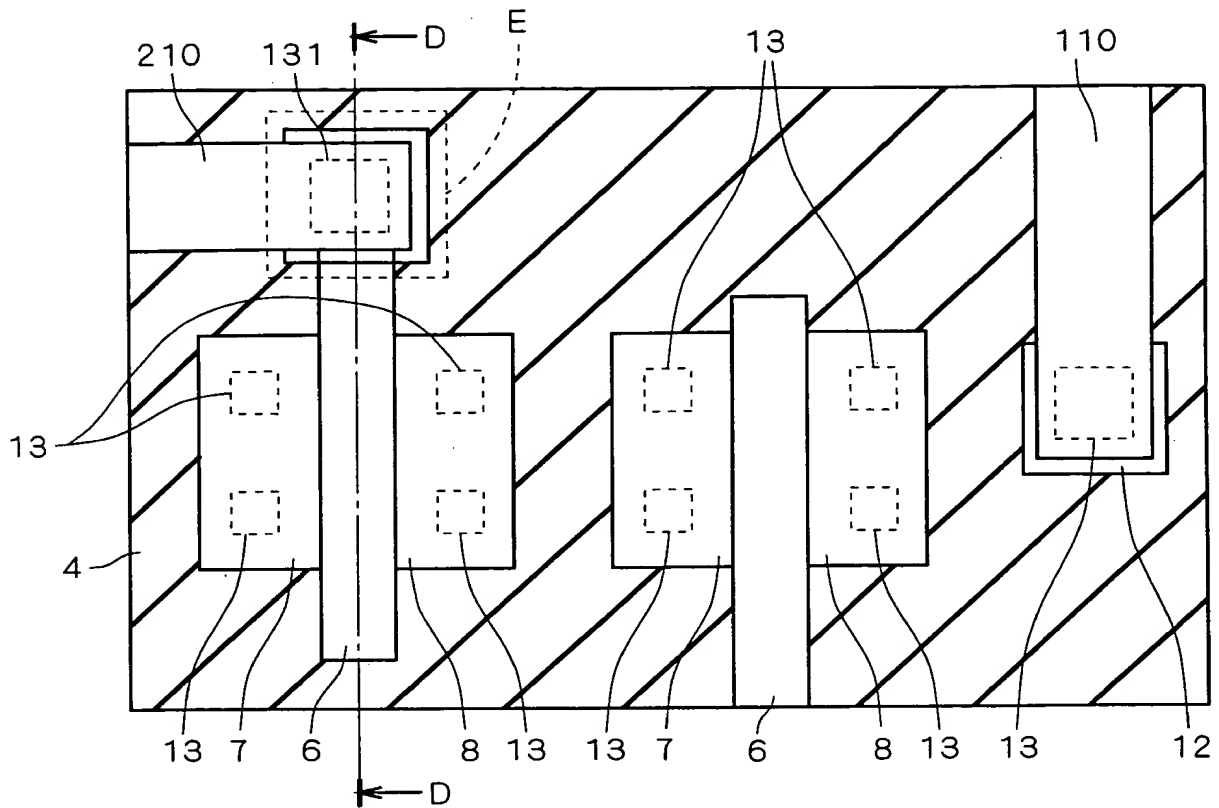


FIG. 9

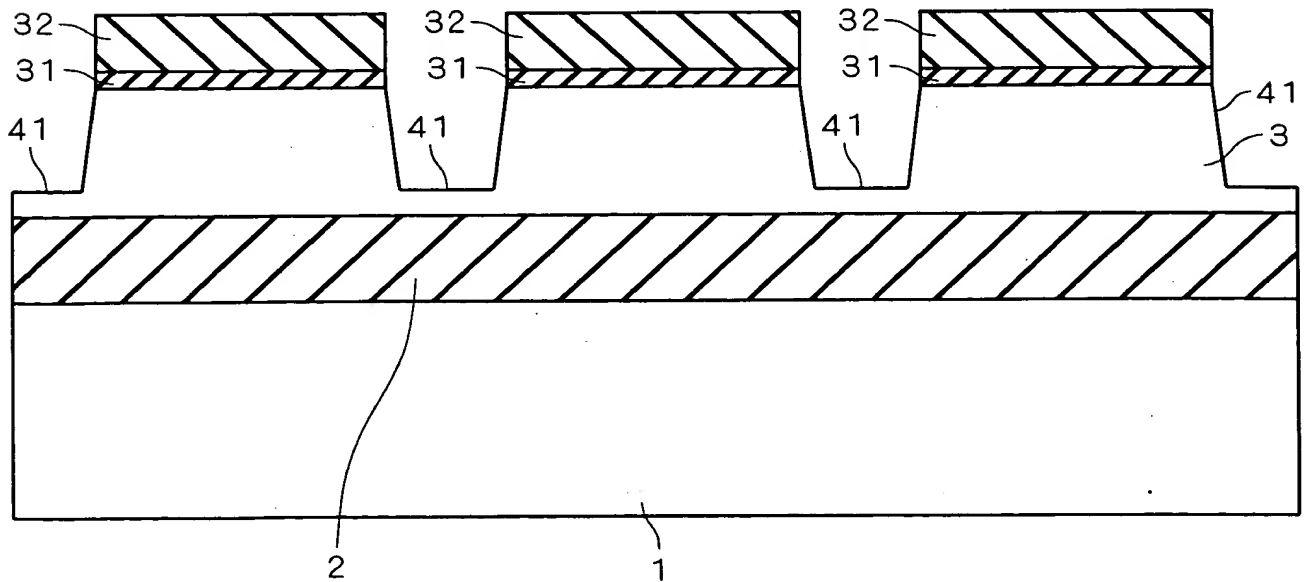




FIG. 10

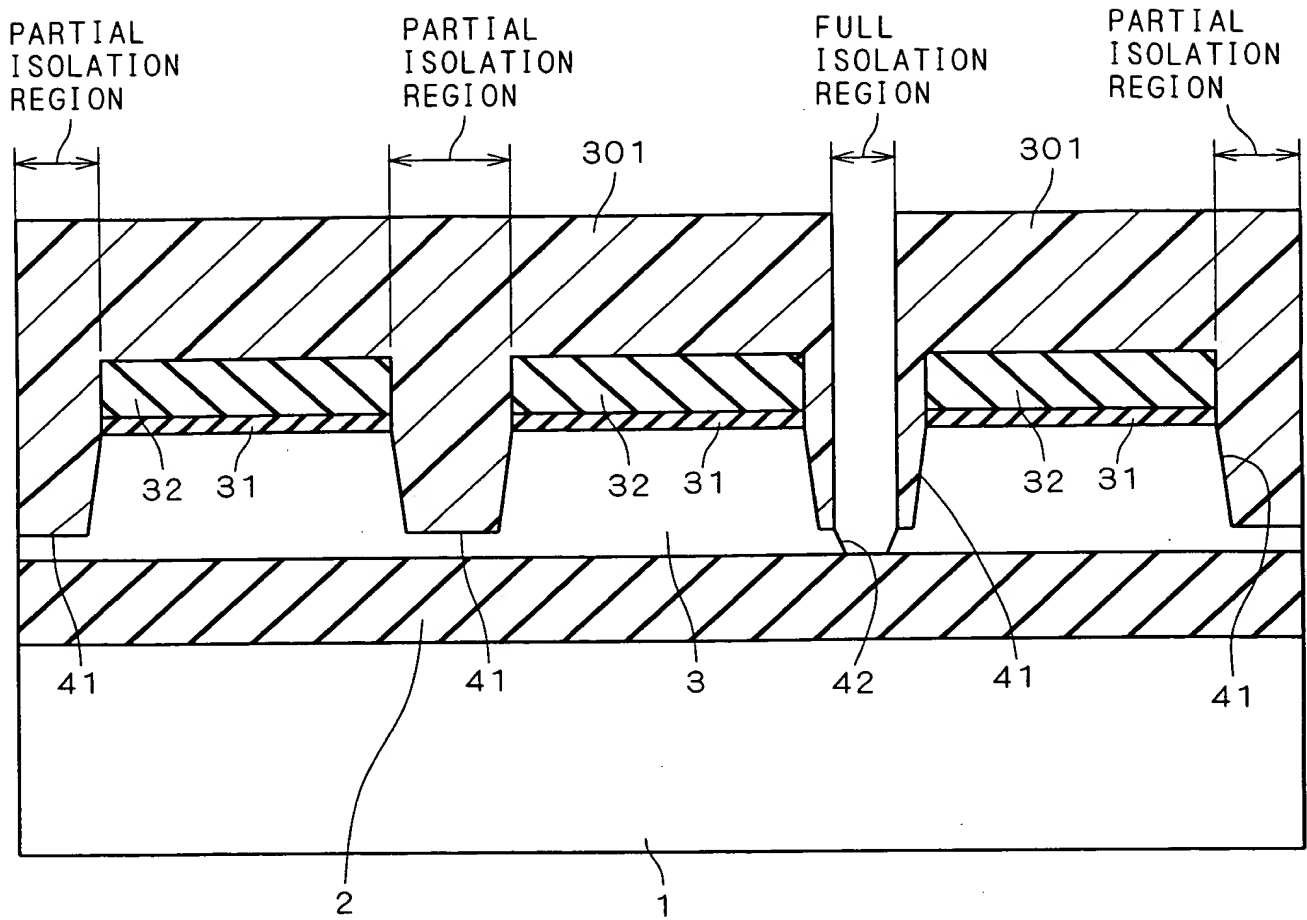
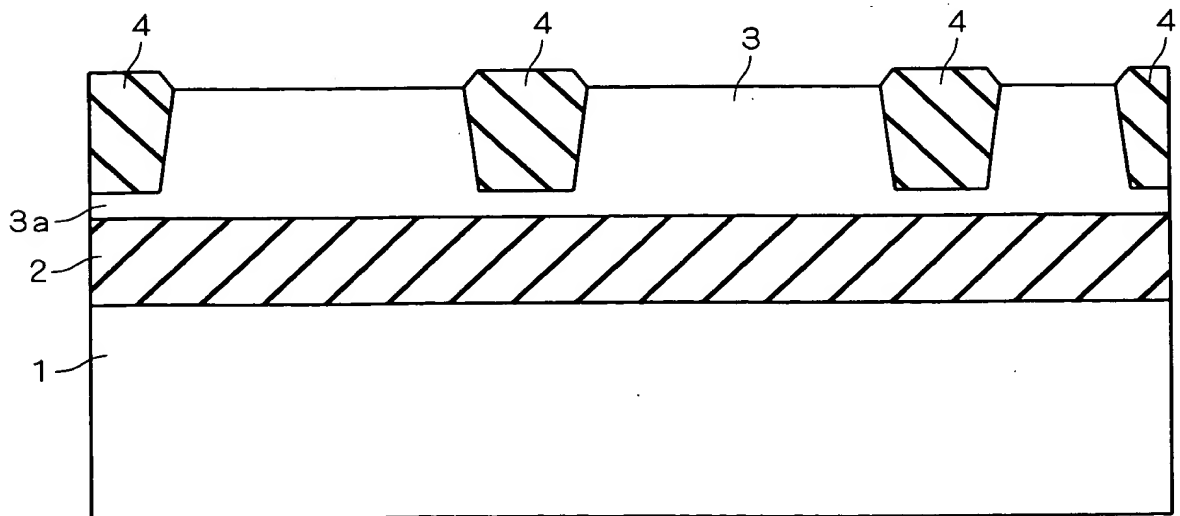
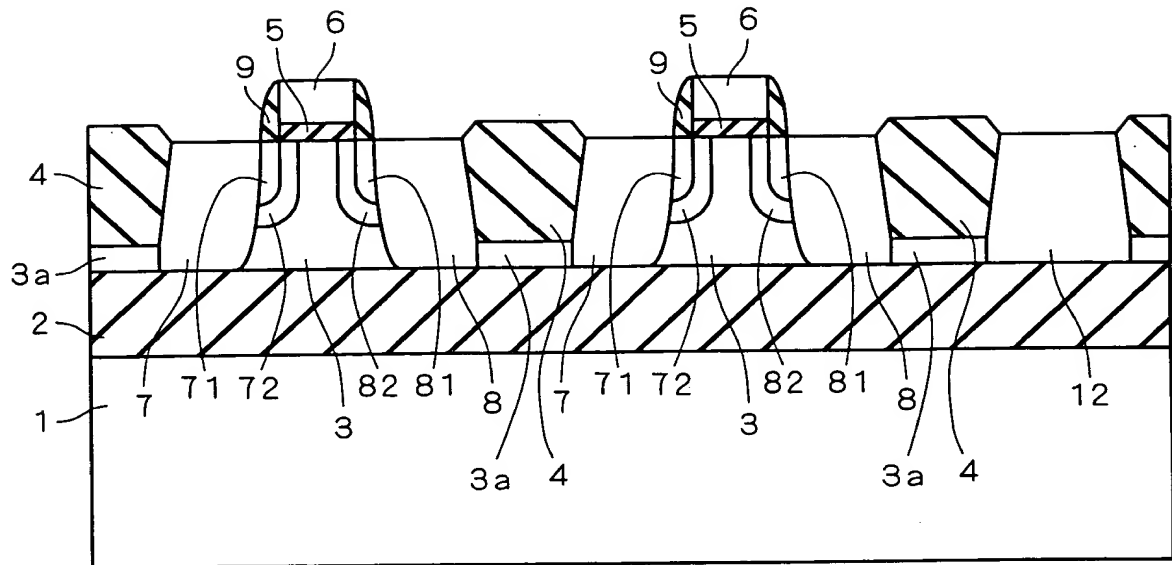


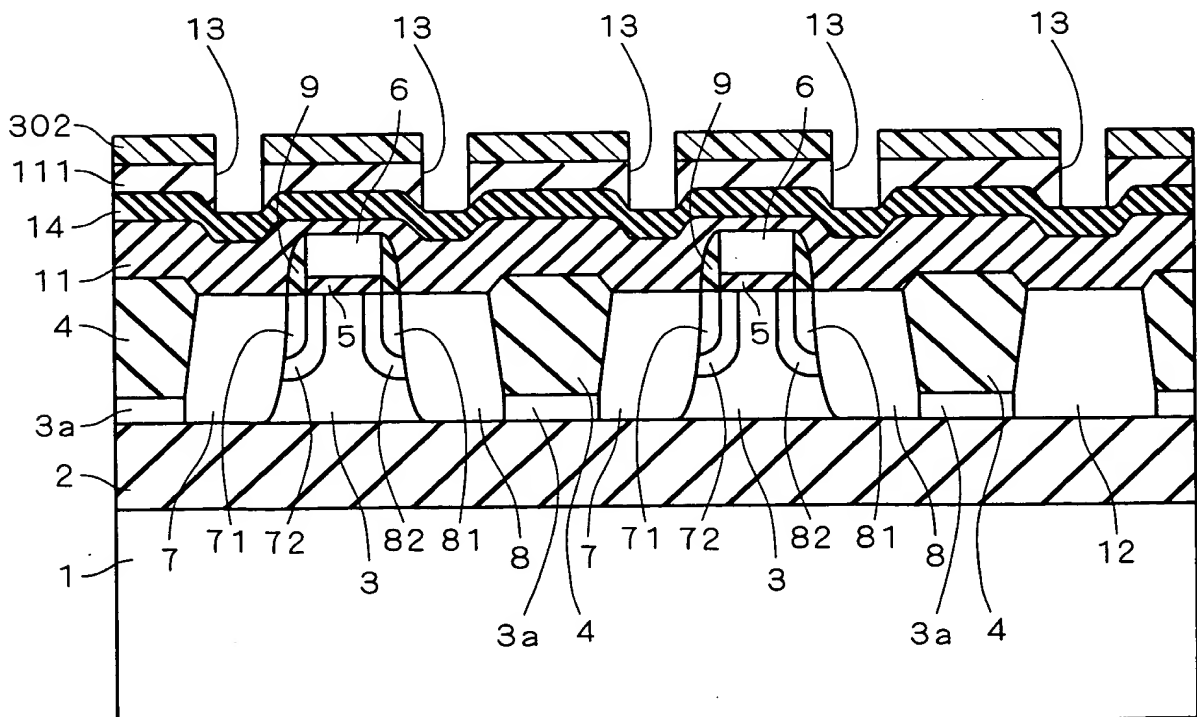
FIG. 11



F I G . 12



F I G . 13



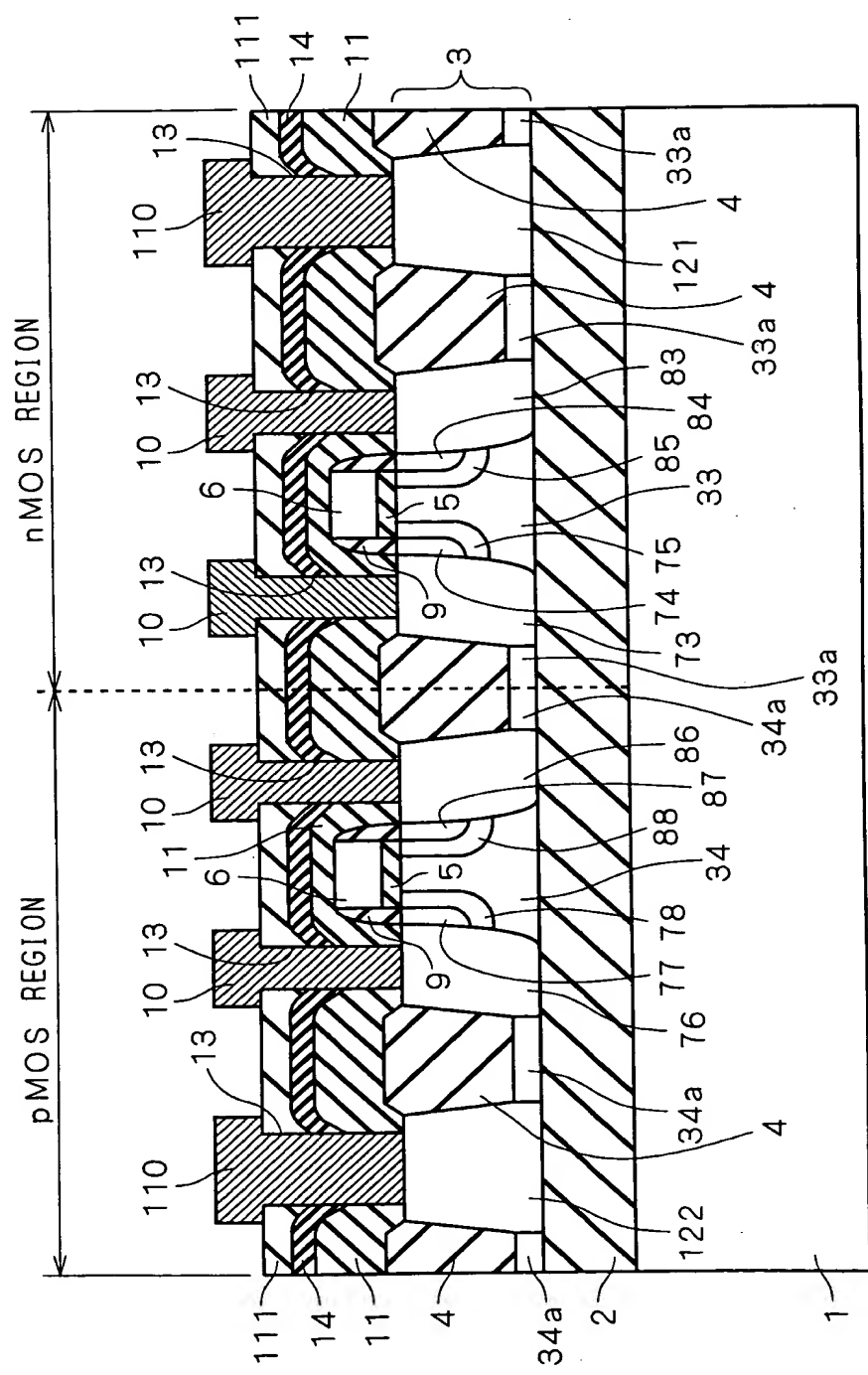


FIG. 14

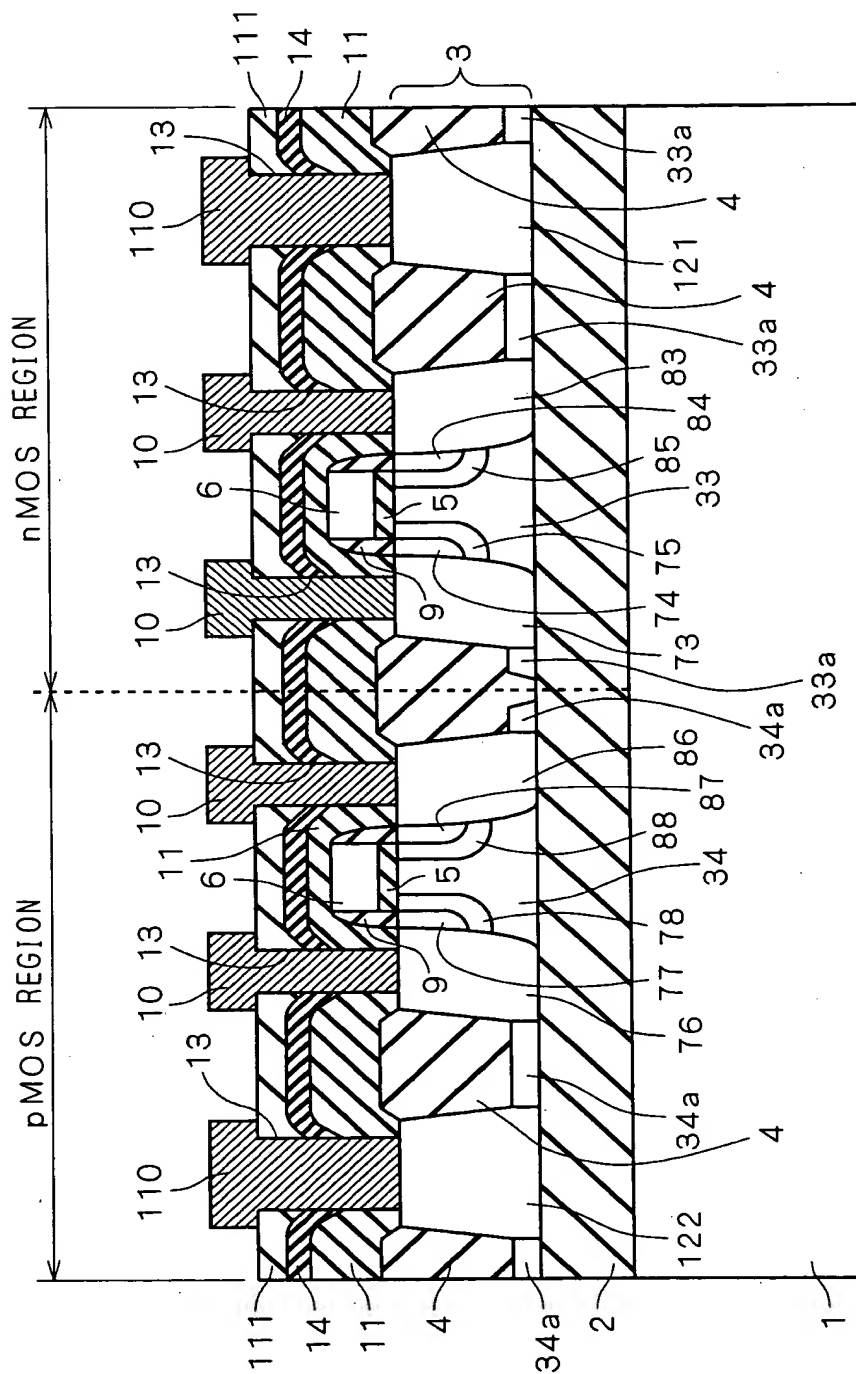


FIG. 15



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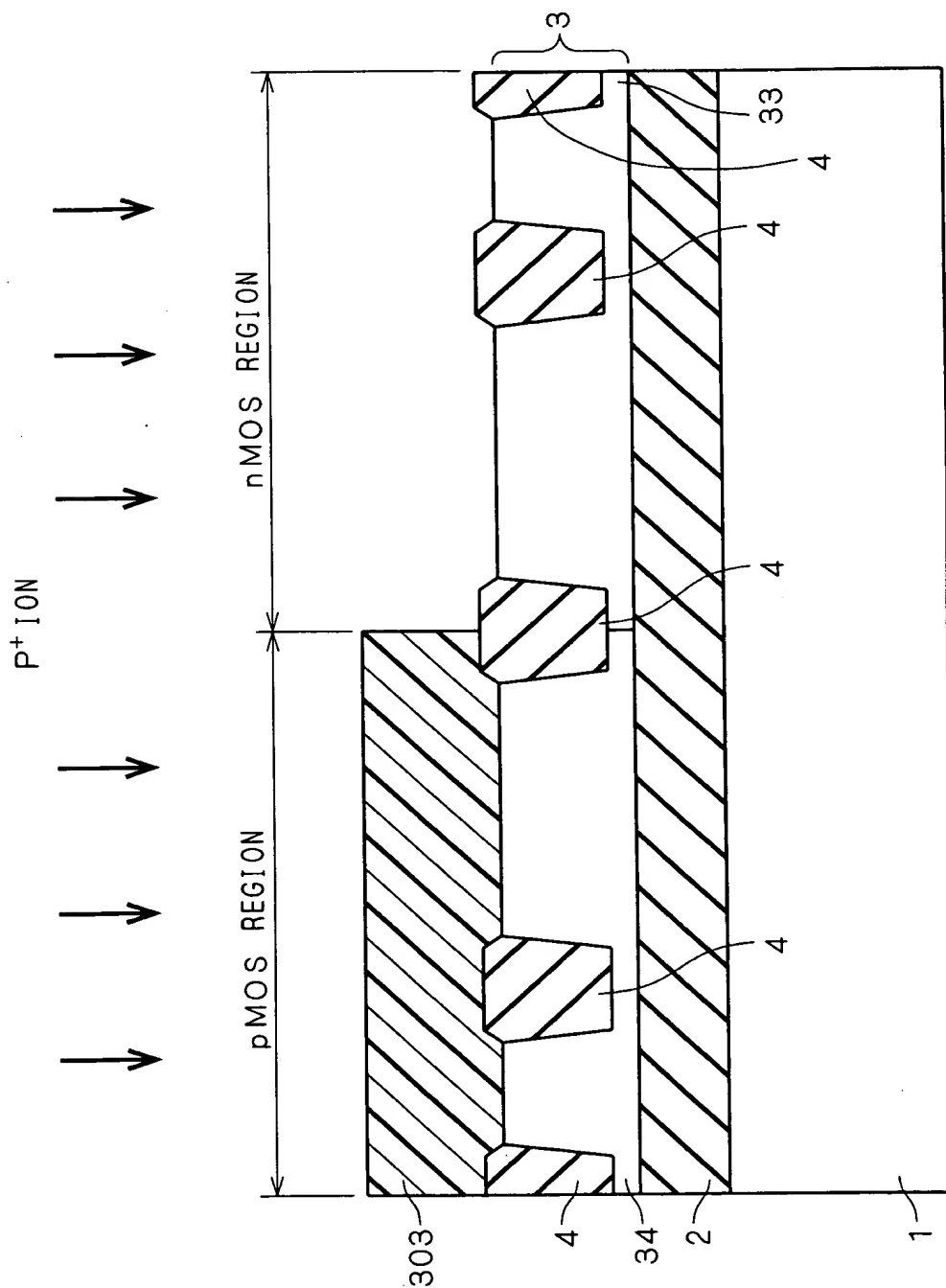
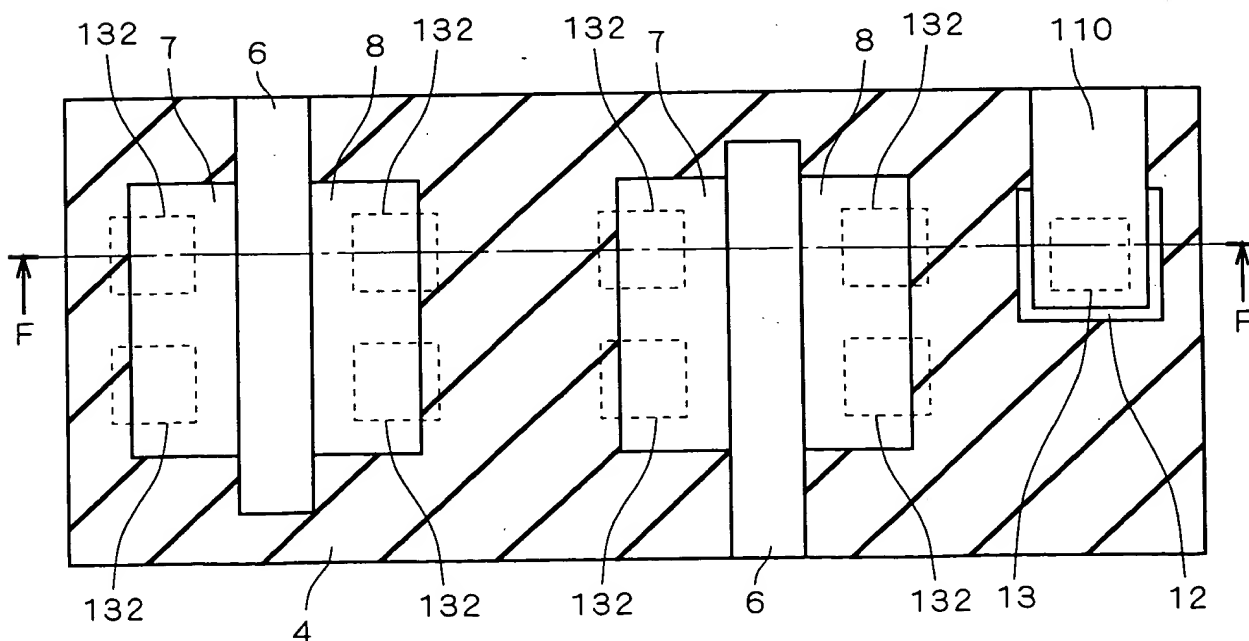


FIG. 16

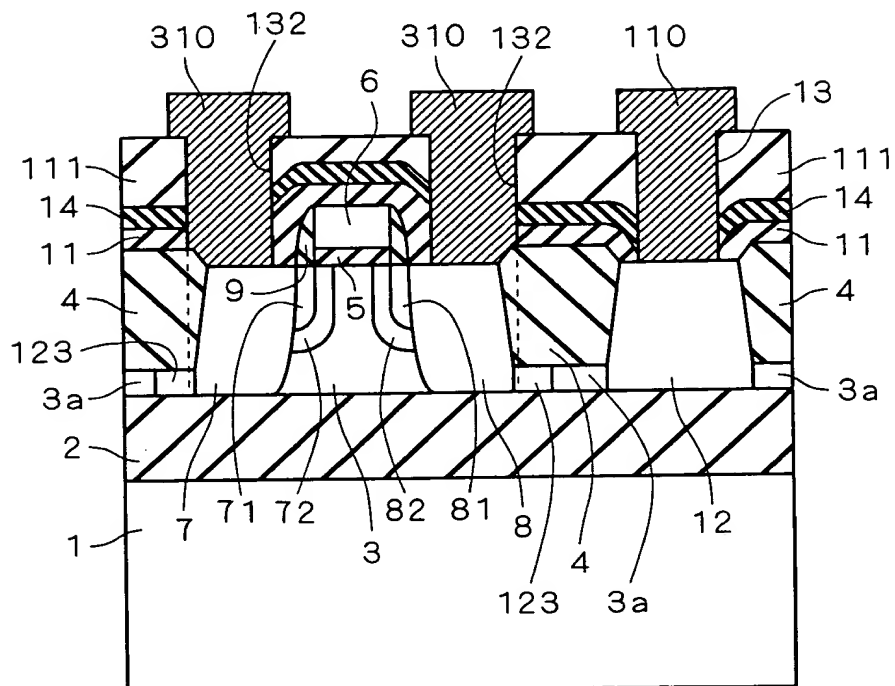
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SHEET 11 OF 14

F I G . 17

F I G . 18



F I G . 19



F I G . 20

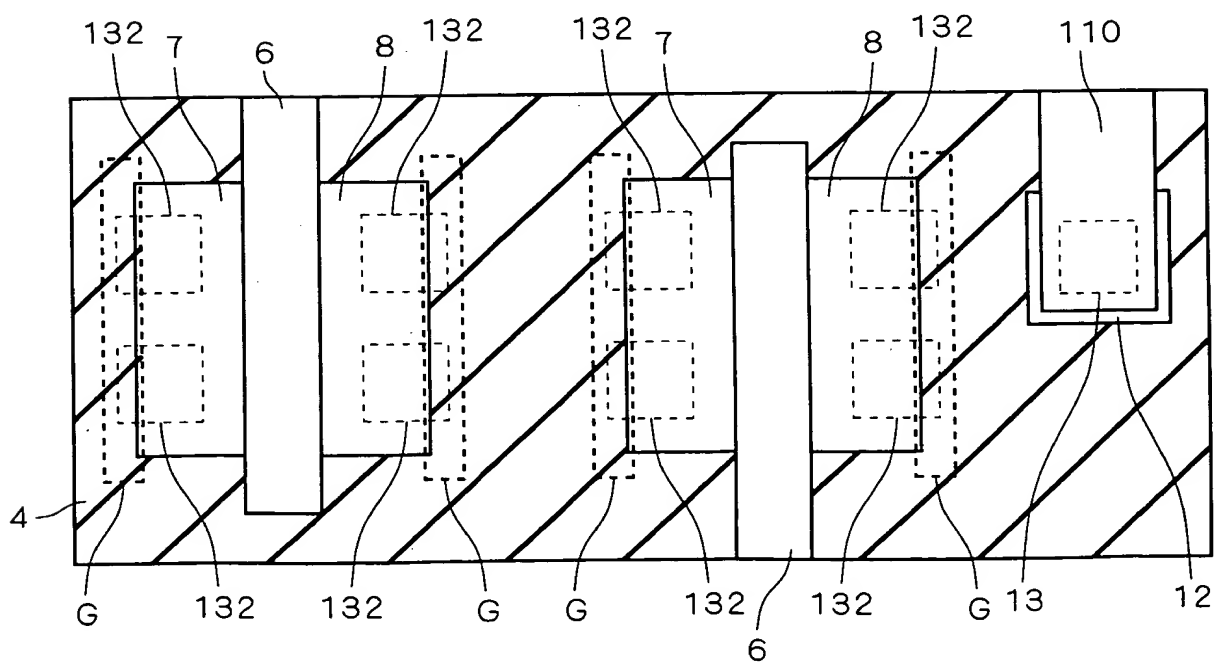




FIG. 21

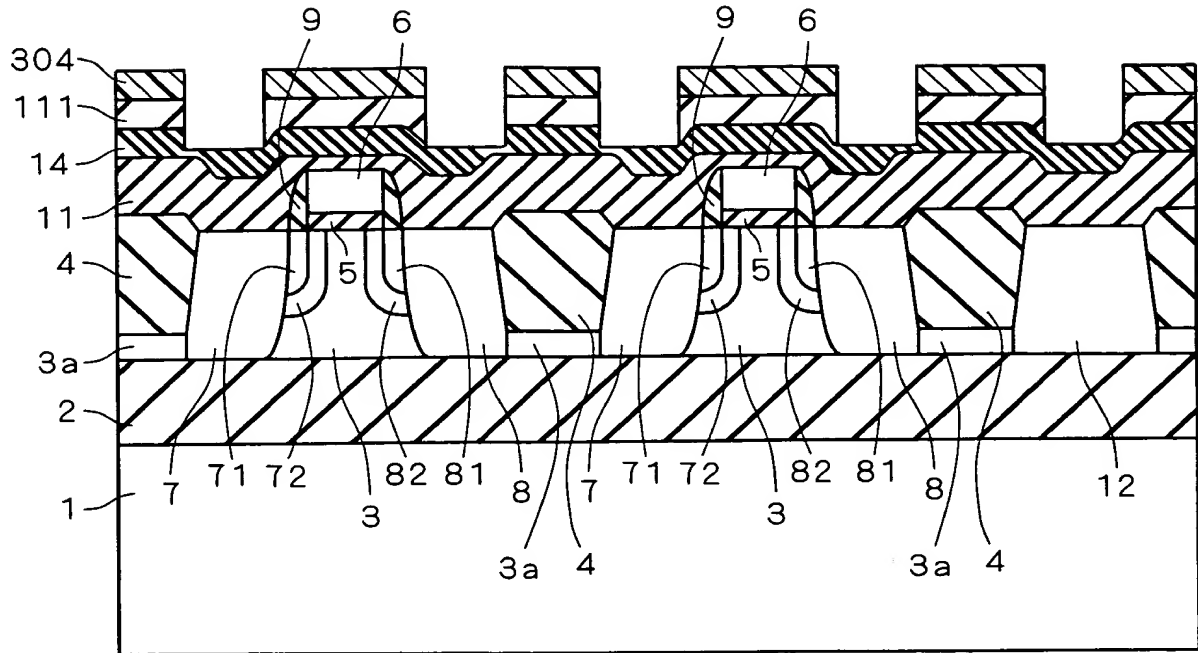


FIG. 22 BACKGROUND ART

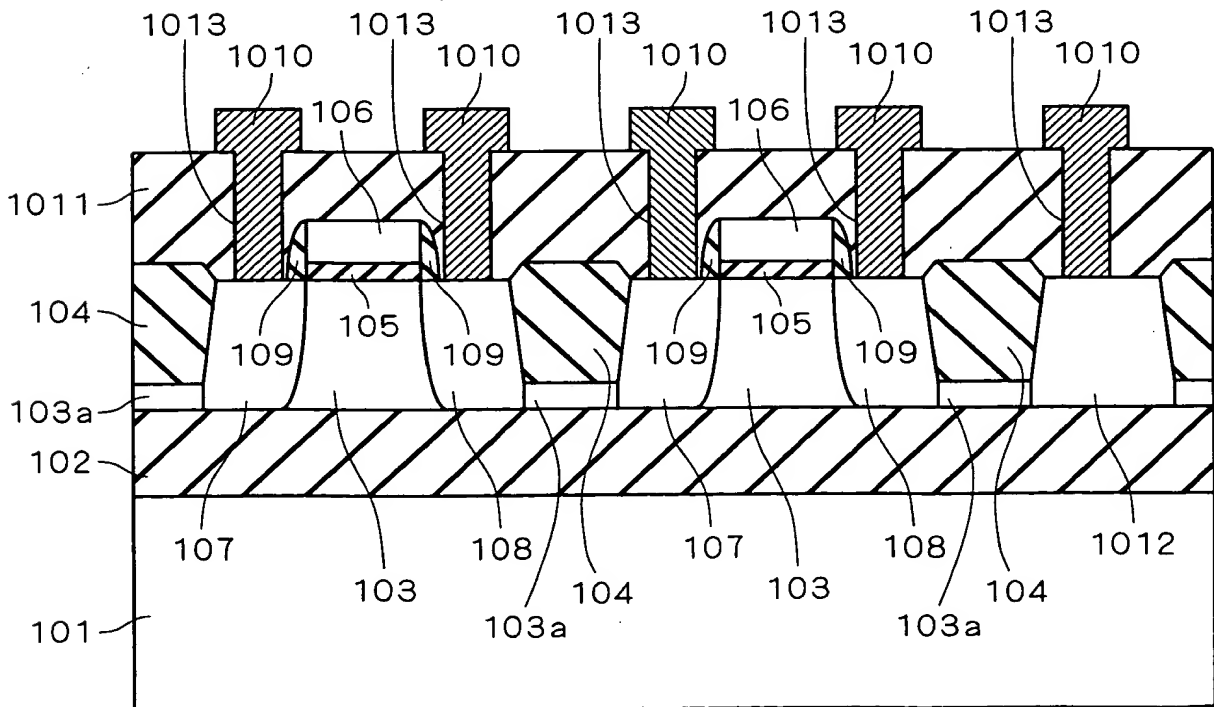


FIG. 24 BACKGROUND ART

